



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,397	10/15/2003	Michael P. Caren	10021298-1	8617

7590 08/17/2006

AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER

FORMAN, BETTY J

ART UNIT	PAPER NUMBER
----------	--------------

1634

DATE MAILED: 08/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/687,397

Applicant(s)

CAREN ET AL

Examiner

BJ Forman

Art Unit

1634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 16-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1634

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, Claims 1-15 in the reply filed on 30 May 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Information Disclosure Statement

2. The IDS submitted 15 October 2003 lists numerous patents with incorrect patent numbers. For example, there is no patent with the number 0,045,274. The patents have not been considered because they do not exist. The incorrectly listed patents have been lined through on the 1449, a copy of which is attached with this action.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 4, 7, 8, 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al (U.S. Patent No. 5,922,617, issued 13 July 1999).

Art Unit: 1634

Regarding Claim 1, Wang et al disclose an apparatus comprising a rotatable support for one or more linear array (e.g. radial array #60, Fig. 3A), each array comprising an array of features for conducting chemical reactions (Abstract), a rotation device for rotating the support (central orifice #64 spindle and motor #122, Column 1, lines 63-66 and Column 14, lines 25-26), and an examining device for examining the results of the reactions (e.g. scanner, Column 15, lines 10-52 and Fig. 3-7).

Regarding Claim 2, Wang et al disclose the apparatus wherein the support comprises a circular tray (i.e. disc, #120, Fig. 7).

Regarding Claim 4, Wang et al disclose the apparatus wherein the examining device comprises an imaging system (e.g. light detection module #130, Column 15, lines 45-52).

Regarding Claim 7, Wang et al disclose the apparatus wherein the rotatable support comprises retaining elements (grooves/pits) each of which receives an array unit (particle) in a seated position ("held firmly in position") in which it extends in the radial position during rotation about the axis (Column 13, line 55-Column 14, line 12).

Regarding Claim 8, Wang et al disclose an apparatus comprising a circular tray (i.e. disc, #120, Fig. 7) having a surface supporting one or more linear arrays (e.g. radial array #60, Fig. 3A), each array comprising a plurality of biopolymers for hybridization (Column 2, line 60-Column 3, line 10 and Column 9, lines 43-65), a rotation device for rotating the support (central orifice #64 spindle and motor #122, Column 1, lines 63-66 and Column 14, lines 25-26), and scanning device for examining the results of the hybridizations (e.g. scanner, Column 15, lines 10-52 and Fig. 3-7). Wang et al teach the apparatus wherein the each array is positioned whereby the detector is oriented to detect and focus on each line pattern/subarray (Column 10, line 50-Column 11, line 10 and Column 15, line 59-Column 16, line 5). Wang et al further illustrate the examination device comprising a linear arrangement of components (Fig. 7). The claims are given the broadest reasonable interpretation consistent with the

Art Unit: 1634

broad claim language and specification wherein a linear examining device is not defined so as to exclude the linear arrangement illustrated by Wang et al.

The courts have stated that claims must be given their broadest reasonable interpretation consistent with the specification *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997); *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969); and *In re Zletz*, 893 F.2d 319, 321-22, 13USPQ2d 1320, 1322 (Fed. Cir. 1989) (see MPEP 2111).

Regarding Claim 10, Wang et al disclose an apparatus comprising a circular tray (i.e. disc, #120, Fig. 7) having a surface supporting one or more linear arrays (e.g. radial array #60, Fig. 3A), each array comprising a plurality of biopolymers for hybridization (Column 2, line 60-Column 3, line 10 and Column 9, lines 43-65), a rotation device for rotating the support (central orifice #64 spindle and motor #122, Column 1, lines 63-66 and Column 14, lines 25-26), and scanning device for examining the results of the hybridizations (e.g. scanner, Column 15, lines 10-52 and Fig. 3-7).

Regarding Claim 11, Wang et al disclose the apparatus wherein the examining device comprises an imaging system (e.g. light detection module #130, Column 15, lines 45-52).

5. Claims 1-4, 6, 9-12 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Remacle et al (U.S. Patent Application Publication No. 2002/0177144, filed 27 December 2001).

Regarding Claim 1, Remacle et al disclose an apparatus comprising a rotatable support (#5) for one or more linear array (e.g. DNA bytes in a radial alignment, ¶ 139), each array comprising an array of features for conducting chemical reactions (e.g. hybridization ¶ 140-141), a rotation device for rotating the support (rotating device, ¶ 35, Fig. 10), and an

Art Unit: 1634

examining device for examining the results of the reactions (e.g. Bio-DC reading devices, ¶ 36, Fig. 11-14).

Regarding Claim 2, Remacle et al disclose the apparatus wherein the support comprises a circular tray (i.e. disc platform, ¶ 142-143, Fig. 8).

Regarding Claim 3, Remacle et al disclose the apparatus further comprising a heater for heating the arrays, ¶ 145-146).

Regarding Claim 4, Remacle et al disclose the apparatus wherein the examining device comprises an imaging system (e.g. Bio-DC reading devices, ¶ 36, Fig. 11-14).

Regarding Claim 6, Remacle et al disclose the apparatus further comprising a fluid dispensing device (e.g. spotter, ¶ 163-165 and Fig. 15 and/or needles, tubing, pumping devices, ¶ 147, Fig. 10).

Regarding Claim 9, Remacle et al disclose the apparatus further comprising a process that controls rotation such that at one speed fluid is removed (i.e. centrifugal force, ¶ 144) and at another speed the support is held for observation (i.e. all manipulation and reading functions are coordinated and computer controlled, ¶ 24). It is noted that the courts have stated that an apparatus is defined by its components and not the process of using the apparatus. However, it is noted that Remacle et al teach the components and function as recited.

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Regarding Claim 10, Remacle et al disclose an apparatus for analyzing hybridization (¶ 140-141) comprising a circular tray (i.e. disc platform, ¶ 142-143, Fig. 8) having a surface for supporting (#5) for one or more linear arrays (e.g. strips or channels, ¶ 62-63 or DNA bytes in a radial alignment, ¶ 139), each array comprising a plurality of biopolymers for hybridization (¶

Art Unit: 1634

140-141), a rotation device for rotating the support (rotating device, ¶ 35, Fig. 10), and an examining device for examining the results of the reactions (e.g. Bio-DC reading devices, ¶ 36, Fig. 11-14).

Regarding Claim 11, Remacle et al disclose the apparatus wherein the examining device comprises an imaging system (e.g. Bio-DC reading devices, ¶ 36, Fig. 11-14).

Regarding Claim 12, Remacle et al disclose the apparatus further comprising a heater for heating the arrays, ¶ 145-146).

Regarding Claim 14, Remacle et al disclose the apparatus further comprising a fluid dispensing device (e.g. spotter, ¶ 163-165 and Fig. 15 and/or needles, tubing, pumping devices, ¶ 147, Fig. 10).

Claim Rejections - 35 USC § 102/103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 15 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wang et al (U.S. Patent No. 5,922,617, issued 13 July 1999).

Regarding Claim 15, Wang et al disclose an apparatus comprising a circular tray (i.e. disc, #120, Fig. 7) having a surface supporting one or more linear arrays (e.g. radial array #60, Fig. 3A), each array comprising a plurality of biopolymers for hybridization (Column 2, line 60-Column 3, line 10 and Column 9, lines 43-65), a rotation device for rotating the support

Art Unit: 1634

(central orifice #64 spindle and motor #122, Column 1, lines 63-66 and Column 14, lines 25-26), and scanning device for examining the results of the hybridizations (e.g. scanner, Column 15, lines 10-52 and Fig. 3-7). Wang et al teach the apparatus further comprising detector (Column 15, line 59-Column 16, line 5). Wang et al do not specifically teach the detector comprises a bubble detector.

The preceding rejection is based on judicial precedent following *In re Fitzgerald*, 205 USPQ 594 because Wang et al is silent with regard to bubble detection. However, the bubble detection recited in Claim 15 is deemed to be inherent in the detector of Wang et al because the detector focuses on and detects excitation from the surface of the disc and uses filters (e.g. blocking filters) to selectively filter excitation wavelengths to minimize noise (Column 15, lines 53-59). Wang et al further teach the apparatus comprises a differential focus error detection to eliminate "pattern noise" (Column 11, lines 40-46). Hence, the detector detects excitation from various components on the disc (i.e. fluorescent label, background and pattern noise) and would detect the presence of bubbles as either background signal or pattern noise because the bubbles would excite light at a wavelength different from a fluorescently labeled bead.

Alternatively, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the detector of Wang et al to detect the excitation wavelengths indicative of the presence of bubbles. One of ordinary skill in the art would have been motivated to do so based on the suggestion of Wang to eliminate noise and background signals.

Furthermore, the claimed bubble detector is reasonably interpreted as an intended use of the claimed examination device. Hence, the claimed bubble detector is either encompassed by or an obvious variation of the apparatus of Wang et al.

The burden is on applicant to show that the claimed bubble detector is either different or non-obvious over that of Wang et al.

Claim Rejections - 35 USC § 103

8. Claims 3, 6, 9, 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al (U.S. Patent No. 5,922,617, issued 13 July 1999) in view of Remacle et al (U.S. Patent Application Publication No. 2002/0177144, filed 27 December 2001).

Regarding Claims 3 and 12, Wang et al disclose an apparatus comprising a circular tray (i.e. disc, #120, Fig. 7) having a surface supporting one or more linear arrays (e.g. radial array #60, Fig. 3A), each array comprising a plurality of biopolymers for hybridization (Column 2, line 60-Column 3, line 10 and Column 9, lines 43-65), a rotation device for rotating the support (central orifice #64 spindle and motor #122, Column 1, lines 63-66 and Column 14, lines 25-26), and scanning device for examining the results of the hybridizations (e.g. scanner, Column 15, lines 10-52 and Fig. 3-7). Wang et al teach the apparatus is used for hybridization (Column 9, lines 43-65) but they are silent regarding a heater for heating the apparatus. However, Remacle et al teach the similar apparatus for hybridization further comprising a heater wherein the heater controls the temperature of the arrays as is necessary for hybridization (§ 145). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the apparatus of Wang et al by adding a heater. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success for the expected advantage of providing the controlled temperature necessary for hybridization as taught by Remacle et al (§ 144).

Regarding Claims 6 and 14, Wang et al teach the apparatus is used by adding sample and reagents and wash solutions to the linear arrays (Column 9, lines 40-67) but they are silent regarding devices for dispensing the reagents. Remacle et al teach the similar device further comprising an automated system comprising the various needles, tubing and pumps for adding reagents and wash solutions wherein the automated delivery advantageously lowers background (§ 147). Remacle et al further teach the device comprising a robotic spotter for

Art Unit: 1634

providing molecules are spotted onto predefined regions (§ 163). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the fluid dispensing devices of Remacle et al to the apparatus of Wang et al. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success and for the expected benefit of reduced background and controlled deposition onto predefined positions as taught by Remacle et al (§ 147 & 163).

Regarding Claim 9, Wang et al teach the apparatus further comprising a processor that controls the motor and synchronization of the data collection (Column 13, lines 3-10) but they are silent regarding control of rotation speed. However, Remacle et al teach the similar apparatus wherein rotation is controlled by a processor (§ 24) to centrifugal force to move fluids and to rotate the disc for focused photo-detection (§ 94 & 98). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the processor of Wang et al to provide required speed for the centripetal force for fluid movement and rotation for focused detection. One of ordinary skill in the art would have been motivated to do so for the expected benefit of providing the controlling rotation speed for desired application as taught by Remacle et al (§ 94 & 98).

9. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al (U.S. Patent No. 5,922,617, issued 13 July 1999) in view of Tsuji (U.S. Patent No. 5,776,782, issued 7 July 1998).

Regarding Claims 5 and 13, Wang et al disclose an apparatus comprising a circular tray (i.e. disc, #120, Fig. 7) having a surface supporting one or more linear arrays (e.g. radial array #60, Fig. 3A), each array comprising a plurality of biopolymers for hybridization (Column 2, line 60-Column 3, line 10 and Column 9, lines 43-65), a rotation device for rotating the

Art Unit: 1634

support (central orifice #64 spindle and motor #122, Column 1, lines 63-66 and Column 14, lines 25-26), and scanning device for examining the results of the hybridizations (e.g. scanner, Column 15, lines 10-52 and Fig. 3-7). Wang et al teach the apparatus comprising a laser light source (Column 10, lines 50-53) and a detector as known in the art e.g. "photomultiplier tube, avalanche photodetector etc." (Column 15, lines 48-53) but does not specifically teach a CCD detector. However, photomultiplier tube, avalanche photodetector and CCD were well known in the art as detectors for laser-excited samples as taught by Tsuji (Column 5, lines 25-28). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the apparatus of Wang et al by using a CCD camera. One of ordinary skill in the art would have been motivated to do so based on the suggestion of Wang et al to use detectors equivalent to avalanche photodetectors (Column 15, lines 48-53) and based on the teaching of Tsuji wherein CCD is a functional equivalent of the avalanche (Column 5, lines 25-28).

Conclusion

10. No claim is allowed.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Art Unit: 1634

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.



BJ Forman, Ph.D.
Primary Examiner
Art Unit: 1634
August 14, 2006